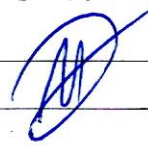


FOR MARS 27

Work Order ID 158054***158054***

Page 1

Wednesday, March 08, 2017 9:26:59 AM

Item ID: D4103-1 **Accept** ***N900040100*** **Setup** **Start** ***NS1***
Revision ID: **Stop** ***NS2***
Item Name: Step / Handle
Start Date: 3/15/2017 **Start Qty:** 30.00 ***30*** **Cust Item ID:**
Required Date: 3/20/2017 **Req'd Qty:** 30.00 ***30*** **Customer:**
Reference: SCHEDULED
Approvals: **Process Plan:**  **Date:** MAR 08 2017 **Tooling:** **Date:** **Run** **Start** ***NR1***
QC: **Date:** **SPC (Y/N):** **Date:** **Stop** ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D4103	A

100	Cut blanks as per folio	0.00				30	0		DAS 14 9-89 17/03/15
100									
Bandsaw	Memo	0.63							
Jeaspa Bandsaw	6.200" long								
110		0.37				30	0		DAS 14 9-89 17/03/15
110									
HAAS 1	Memo	1.35							
HAAS CNC vertical machine #1	Mill as per dwg and Folio FA937								
	DEBURR								DAS 44 9-89 17-03-16
120	QC2- Inspect parts off machine FAI/FAIB	0.00				30	0		DAS 14 9-89 17/03/15
120									
QC	Memo	0.00							
Quality Control									

DAS
 44
 9-89
 17-03-16

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

158054

Wednesday, March 08, 2017 9:26:59 AM

N900040100

Setup Start *NS1*

Stop *NS2*

30

Cust Item ID:

Start Date: 3/15/2017 **Start Qty:** 30.00

Required Date: 3/20/2017 **Req'd Qty:** 30.00

30

Customer:

Reference: SCHEDULED

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

**Insp.
Stamp**

0.00

130

QC

Memo

0.00

Quality Control

0.00

140

HandFinish

Memo

0.88

Hand Finishing

0.00

150

OC

Memo

0.00

Quality Control

30 9 DAS 45 2017-3 9-89

x30 2020322
BEB

(30) 17.03.23 PD

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Cross tube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																															
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Work Order ID 158054

Wednesday, March 08, 2017 9:26:59 AM

158054

Page 3

Item ID: D4103-1 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Step / Handle
Start Date: 3/15/2017 Start Qty: 30.00 ***30*** Cust Item ID:
Required Date: 3/20/2017 Req'd Qty: 30.00 ***30*** Customer:
Reference: SCHEDULED

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	Identify as per dwg & Stock Location: <u>57080</u>	0.00							DAS 41 9-89
160									
Packaging	Memo	0.00			DAS 6 9-89	30			
Packaging									MAR 27 2017
170	QC21- Final Inspection - Work Order Release	0.00							
170									
QC	Memo	0.00							17/3/28 JH
Quality Control									

DAS
21
9-89 MAR 27 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:12.5%;">Skid-tube ☐</td> <td style="width:12.5%;">Cross tube ☐</td> <td style="width:12.5%;">Water Jet ☐</td> <td style="width:12.5%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coor. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coor. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																															
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Picklist Print

Wednesday, March 08, 2017 9:27:05 AM

Page 1

Work Order ID: 158054

158054

Parent Item: D4103-1

D4103-1

Parent Item Name: Step / Handle

Start Date: 3/15/2017

Required Date: 3/20/2017

Start Qty: 30.00

Required Qty: 30.00

Comments: IPP REV: A NEW ISSUE 10-07-01 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B2.000X03.50 0		Purchased	No			100	f	12.8505	0.52	16.42105			

M6061T6B2 000X03 500

6061-T6 Bar 2.00 x 3.50

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
MAT004	12.8505	
m134057	0.8505	
m136036	12	

DAS
14
9-89

4.4

17/03/15

M137043 → 11.5

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:12.5%;">Skid-tube ☐</td> <td style="width:12.5%;">Cross tube ☐</td> <td style="width:12.5%;">Water Jet ☐</td> <td style="width:12.5%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
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Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																		
Description Work Order Deviation				Disposition																					
2AO AT BP-C																									
Root Cause		FAULT CATEGORY																							
Environment ☐	☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐																			
Design ☐		Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐																			
Doc/Data ☐		Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐																			
Equip/Tooling ☐		Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐																			
Handling/Pre ☐		Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐																			
Material ☐		Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐																			
Internal Transport ☐		Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐																			
Tribal Knowledge ☐		Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐																			
LOA ☐		Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐																			
Substation ☐		Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐																			
Past Expiry Date ☐		Manufacturing Process ☐	OTHER :																						
Misidentified ☐		Past Due ☐																							

DART AEROSPACE LTD		Work Order:	158054
Description: Step/Handle		Part Number:	D4103-1
Inspection Dwg: D4103	Rev: A	Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

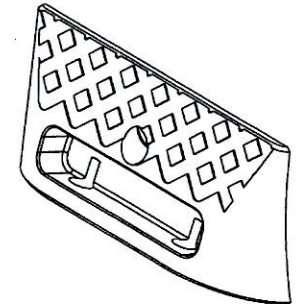
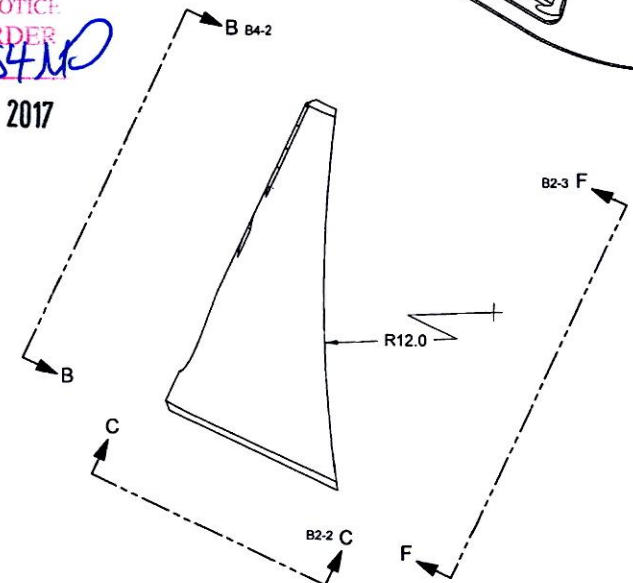
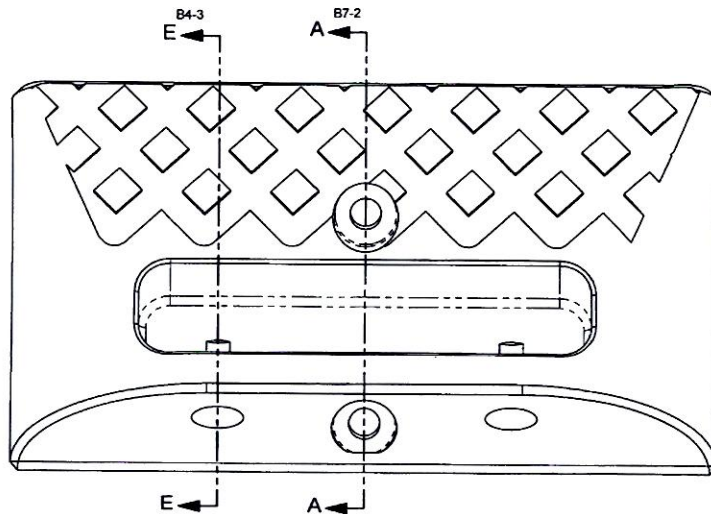
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
2.93	+/-0.030	2.928	/		Uem M1-D6	
0.37	+/-0.030	.368	/		"	
0.83	+/-0.030	.832	/		"	
Ø0.560	+/-0.010	.560	/		"	
0.06 X 45°	+/-0.030 X +/-0.5°	.060X45°	/		"	
0.26	+/-0.030	.260	/		"	
0.33	+/-0.030	.335	/		"	
R0.06	+/-0.030	R.060	/		R-G	
1.78	+/-0.030	1.783	/		Uem M1-D6	
0.45	+/-0.030	.442	/		"	
0.33	+/-0.030	.335	/		"	
0.75	+0.000/-0.030	.749	/		"	
1.66	+/-0.030	1.650	/		"	
0.80	+/-0.030	.800	/		"	
1.07	+/-0.030	1.073	/		"	
3.85	+/-0.030	3.850	/		"	
0.03 X 45°	+/-0.030 X +/-0.5°	.030X45°	/		"	
0.31	+/-0.030	.306	/		"	
0.28	+/-0.030	.278	/		"	
0.030 Deep	+/-0.030	.030	/		"	
6.00	+/-0.030	5.997	/		"	
R0.27	+/-0.030	R.270	/		R-G	
0.56	+/-0.030	.552	/		Uem M1-D6	
1.74	+/-0.030	1.748	/		"	
2.50	+/-0.030	2.500	/		"	
Ø0.438	+0.006/-0.001	Ø.440	/		"	
Ø0.266	+0.006/-0.001	Ø.267	/		"	
0.96	+/-0.030	.952	/		"	
0.26	+/-0.030	.250	/		"	
0.25	+/-0.030	.250	/		"	
2.25	+/-0.030	2.250	/		"	
1.00	+/-0.030	1.000	/		"	
0.20	+/-0.030	.200	/		"	
0.98	+/-0.030	.980	/		"	
0.32	+/-0.030	.320	/		"	
1.25	+/-0.030	1.250	/		"	
R0.19	+/-0.030	R.190	/		R-G	

Measured by:	DAS 14 9-89	Audited by:	DAS 45 9-89	Preliminary Approval:	
Date:	17/03/15	Date:	17-3-15	Date:	

Rev	Date	Change	Revised by	Approved
A	10.10.07	New Issue	KJ	M

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 158054 MD

MAR 08 2017



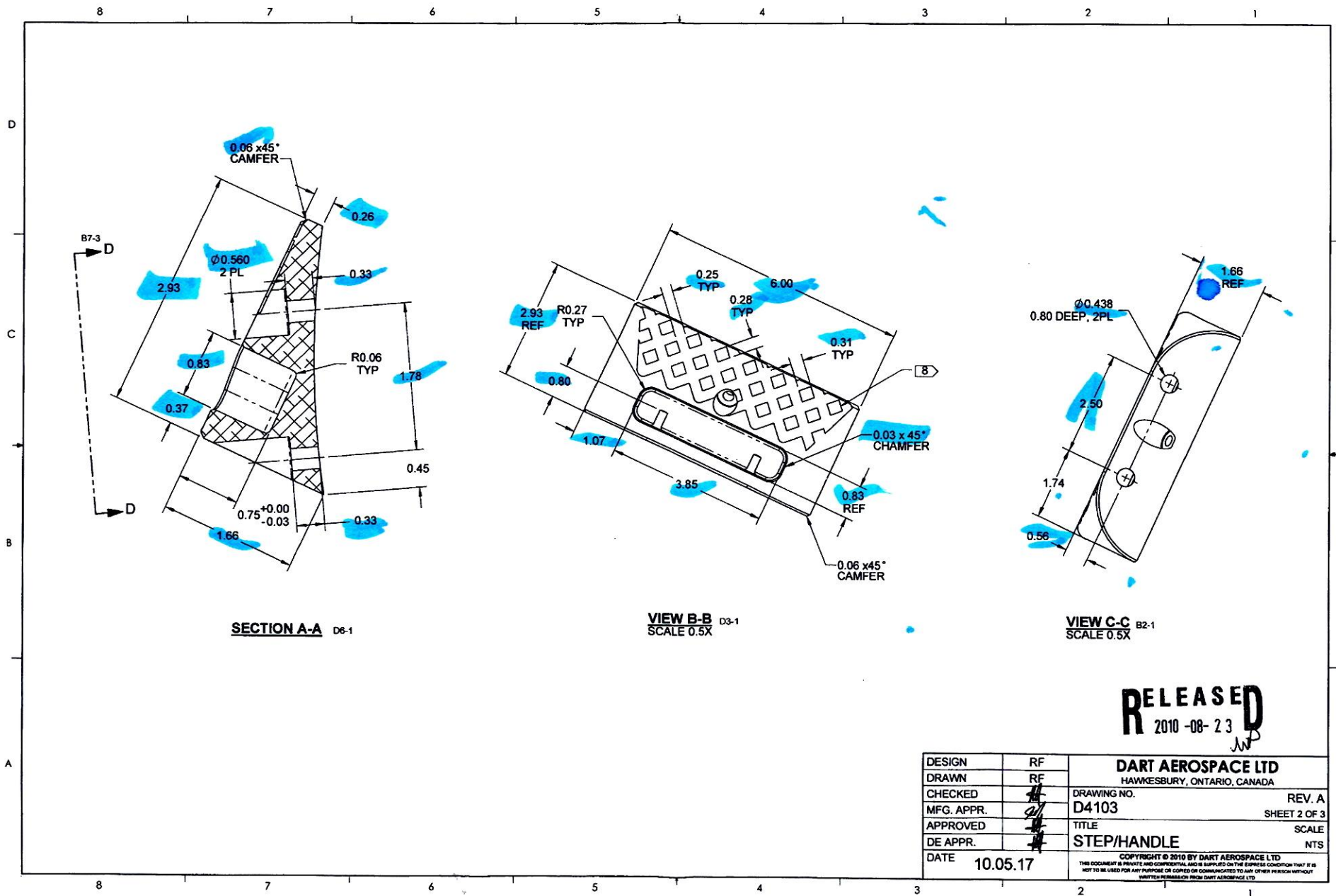
D4103-1 STEP/HANDLE

RELEASED
2010-08-23
JWP

NOTES:

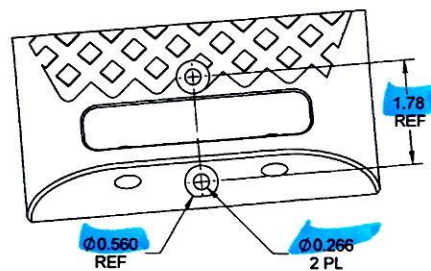
- 1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4103-1" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.81 lbs
- 8) MACHINE 0.28 x 0.31 GRIP 0.030 DEEP AT 45° PATTERN 0.25 APART

A		NEW ISSUE		RF		10.05.17		
REV.		DESCRIPTION			BY		DATE	
DESIGN		RF		DART AEROSPACE LTD HAWKESSBURY, ONTARIO, CANADA				
DRAWN		RF						
CHECKED		RF		DRAWING NO.		REV. A		
MFG. APPR.		RF		D4103		SHEET 1 OF 3		
APPROVED		RF		TITLE		SCALE		
DE APPR.		RF		STEP/HANDLE		NTS		
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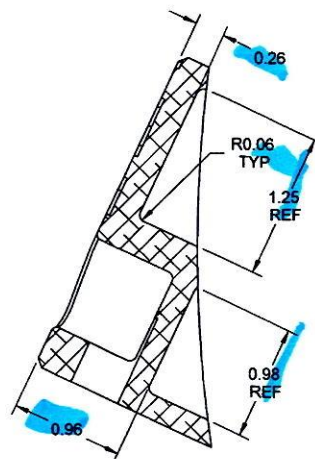


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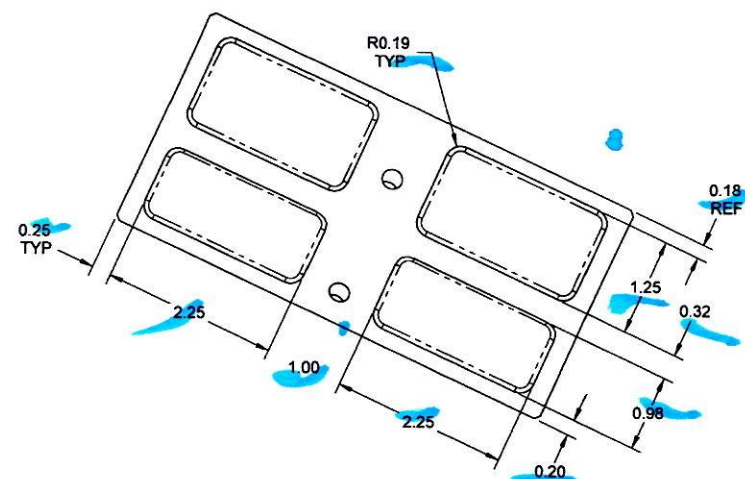
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DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO. D4103	REV. A
MFG. APPR.	<i>[Signature]</i>	SHEET 2 OF 3	
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VIEW D-D C8-2
SCALE 0.5X



VIEW E-E D7-1



VIEW F-F C1-1

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APPROVED	<i>[Signature]</i>	TITLE	SCALE
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